REMARKS

The Office Action dated January 31, 2002, has been carefully considered. In response to the Office Action, the Applicant has amended the application. Applicant requests that the Examiner consider the following remarks, and then pass the application to allowance.

It should be noted this Amendment was originally filed with the U.S. Patent and Trademark Office on April 23, 2003. Accordingly, at the time the Amendment was filed with the U.S. Patent and Trademark Office, the Amendment as submitted was in compliance with 37 C.F.R. §1.121. However, in response to the Notice of Non-compliant Amendment dated February 23, 2006, Applicant has submitted the Amendment in compliance with 37 C.F.R. §1.121 as revised in the Notice of Final Rule making published in the *Federal Register* on June 30, 2003, at 65 *Fed. Reg.* 38611.

Pending Claims

Claims 1-14 remain pending.

Claim Objections

Claims 1, 5 and 12 were objected to for incorrect step numbering and mis-spelling. These errors have been corrected.

Rejection Under 35 U.S.C. § 112, First Paragraph

Claim 1 was rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains or with which it is mostly nearly connected, to make and/or use the invention. Claim 1 has been amended to remove reference to "said inequalities."

Art Rejection Under 35 U.S.C. § 103(a)

Claims 1-6 were rejected under 35 U.S.C. § 103(a) as unpatentable over Schoenblum, et al. (U.S. Pat. No. 6,240,103) in view of Mitra, et al. (U.S. Pat. No. 6,331,986).

Schoenblum, et al. discloses a statistical multiplexer (80) having a set of transmission controllers 84(n) each dedicated to a variable bit-stream. Each

transmission controller determines the bandwidth to be allocated to an associated bit stream during a time slot, on an *individual* basis, based on timing and size information extracted from the bit-stream itself. The bandwidth allocation determination is made using a model (94) of a bit-stream buffer (34) of the decoder at the receiving end, and adapting the conditions imposed by the bit-stream buffer of the decoder to the model in the statistical multiplexer.

Among the limitations of the Schoenblum, et al. approach is that it is specific to the MPEG-2 standard, since it requires the timing and size information encoded into MPEG-2 packets in order to perform the statistical analysis. (See col. 6, ll. 53-56). Moreover, Schoenblum, et al., operates on an *individual bit-stream basis,* as well as the individual time slot basis discussed above. Schoenblum, et al. allocates bandwidth based on the needs of each bitstream as it is being transmitted and as determined by reading packet information from the incoming MPEG-2 standard bit-streams. Schoenblum, et al. neither teaches nor suggests use of the condition that "the data rate from the server will never be less than the client's minimum data rate, which is a non-increasing function of time *obtained by dividing the content not yet delivered by the remaining play time*." (Claim 1, emphasis added). In fact, Schoenblum, et al., contrary to the reference to the Abstract thereof in the Office Action, *never looks at the remaining play time*, and instead analyzes bandwidth requirements on an incremental, time-slot level. By contrast, in the presently claimed invention, determinations of remaining play time and content factor into the various computations involved in the optimization approach, including for instance determining minimum flow rates, server swing capacity, and so forth.

Claim 1 further expressly sets forth "performing periodic computations in compliance with conditions (1) - (5) to obtain a state value that maximizes [a] cost function." Schoenblum, et al. does not perform periodic computations in compliance with condition (5) in particular, because, as explained above, Schoenblum, et al. does not take into account remaining play time and content, as set forth in condition (5). The combination of Schoenblum, et al. with Mitra, et al., even if proper, fails to obviate this shortcoming, because Mitra, et al., like Schoenblum, et al., does not teach or suggest "performing periodic computations in compliance with conditions (1) - (5) to obtain a state value that maximizes [a] cost function." Condition (5), it will be recalled, states that "the data rate from the

server will never be less than the client's minimum data rate, which is a non-increasing function of time obtained by dividing the content not yet delivered by the remaining play time." Mitra, et al. neither teaches nor suggests the examining remaining play time, or content not yet delivered, and using these parameters in the cost function maximization. Steps 131 and 132 in FIGS. 9-11 of Mitra, et al. pertain to solving the optimum routing problem (131) and computing the linearized capacity costs (132), and are unrelated to the conditions set forth in Claim 1 of the present invention.

Claims 7-8 were rejected under 35 U.S.C. § 103(a) as unpatentable over Schoenblum, et al. as applied to Claim 4, and further in view of Mitra, et al. and Odlyzko, (U.S. Pat. No. 6,295,294).

Like Mitra, et al., Odlyzko fails to remedy the above-mentioned shortcomings of Schoenblum, et al. in teaching or suggesting the presently claimed invention, even if Odlyzko were properly combinable with Schoenblum, et al. and Mitra, et al.

Claims 9-13 were rejected under 35 U.S.C. § 103(a) as unpatentable over Yin, et al. (U.S. Pat. No. 5,982,748) in view of Schoenblum, et al.. It is acknowledged in the Office Action that Yin, et al. "does not teach the use of the sum of the minimum flow rate for each client in the calculation of the server swing capacity." Schoenblum, et al. is then cited as disclosing "a step of determining the server swing capacity given by the difference between the total server bandwidth and the sum of the minimum flow rate for each client." The specific passages cited from Schoenblum, et al. are the Abstract, and col. 11, lines 33-40).

It is respectfully submitted that these passages make no reference to swing capacity or its equivalents or obvious variants. Swing capacity, according to Claim 9 as amended, is "given by the difference between the total server bandwidth and the sum of the minimum flow rates of all currently-connected clients," with the minimum flow rate for each client being "expressed as a non-increasing function of time obtained by dividing content not yet delivered by remaining play time." As discussed above, Schoenblum, et al. neither teaches nor suggests analysis based on remaining play time and content not yet delivered. The passages of Schoenblum, et al. referenced in the Office Action are consistent with Schoenblum, et al.'s single time slot approach. This approach

incrementally adjusts allocation of bandwidth during delivery, based on an examination of content and in reliance upon the specific MPEG-2 encoded timing information. It does not take the global approach of the present information, which, as set forth in Claim 9, takes into account total remaining play time and remaining content. Accordingly, Schoenblum, et al. does not remedy the defects of Yin, et al. teaching or rendering obvious the presently claimed invention, and the rejection of Claims 9-13 based on the combination of Schoenblum, et al. and Yin, et al. should be withdrawn.

Claim 14 was rejected under 35 U.S.C. § 103(a) as unpatentable over Schoenblum, et al. Claim 14 has been amended to state that "the determination of the minimum flow rate being based on a non-increasing function of time obtained by dividing content not yet delivered by remaining play time." As discussed above, this feature is neither taught nor suggested by Schoenblum, et al. Accordingly, Claim 14 is patentable over Schoenblum, et al., and withdrawal of the rejection based thereon is respectfully requested.

Conclusion

In view of the preceding discussion, Applicant respectfully urges that the claims of the present application define patentable subject matter and should be passed to allowance. Such allowance is respectfully solicited.

If the Examiner believes that a telephone call would help advance prosecution of the present invention, the Examiner is kindly invited to call the undersigned attorney.

Respectfully submitted,

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